



AMENDMENTS TO THE CLAIMS

This listing of the claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. **(Original)** A transmitter for an optical network unit (ONU) adapted to transmit data over a return data channel of a passive optical network in accordance with a predefined time-sharing protocol, the transmitter comprising:

 a laser driver for driving a laser of the transmitter to generate an optical carrier;

 a modulation sub-system for modulating data onto the optical carrier generated by the laser; and

 a secondary modulation sub-system for impressing an ONU identifier onto the optical carrier, the ONU identifier serving to identify the ONU to a network monitor that monitors the return data channel.
2. **(Original)** The transmitter as claimed in claim 1 wherein the secondary modulation sub-system comprises:

 a tone source for supplying a tone that serves as the ONU identifier to a tone modulator adapted to modulate the ONU identifier onto the optical carrier.
3. **(Original)** The transmitter as claimed in claim 2 wherein the tone has a frequency that is well below a data modulation frequency of the primary modulation subsystem.
4. **(Original)** The transmitter as claimed in claim 2 wherein the tone has a frequency that is well above a data modulation frequency of the primary modulation subsystem.
5. **(Original)** The transmitter as claimed in claim 1 wherein the secondary modulation sub-system comprises:

an ONU identifier source for supplying the ONU identifier to the modulation sub-system to permit the ONU identifier to be modulated onto the optical carrier by the secondary modulation sub-system.

6. **(Original)** The transmitter as claimed in claim 2 further comprising a switch for selectively switching the tone to the tone modulator so that the tone modulator does not impress the ONU identifier onto the optical carrier during a timeslot allocated to the ONU.
7. **(Original)** The transmitter as claimed in claim 6 further comprising a latching circuit adapted to receive timeslot information indicating a timeslot allocated to the ONU, the latching circuit being further adapted to toggle the switch to switch the tone to the secondary modulation sub-system at respective boundaries of the timeslot.

Claims 8-11. **Cancelled**

12. **(Original)** The system as claimed in claim 6 wherein the network monitor comprises:
an optical tap for tapping a small proportion of light from the time-shared return data channel;
an optical detector for converting the tapped light to an electrical signal;
an amplifier for amplifying the electrical signal;
a band pass filter for removing unwanted components from the electrical signal; and
a demodulation and tone detection circuit for processing the digital signal to identify any ONU that impressed an ONU identifier on the return data channel.

Claims 13-24. **Cancelled**